4-22-02

9200/2877
#28

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Dickensheets et al. Serial No. 09/070,699 Filed: April 30, 1998 For: *MINIATURE SCANNING CONFOCAL MICROSCOPE*	Group Art Unit: 2877 Examiner: Hung Ngo **PETITION FOR WITHDRAWAL OF ABANDONMENT** Date: April 18, 2002

"EXPRESS MAIL" Mailing Label Number EL527874142US
Date of Deposit: April 18, 2002
I hereby certify that the below-listed documents are being deposited with the United States Postal Service "EXPRESS MAIL POST OFFICE TO ADDRESSEE" service Under 37 CFR 1.10 on the date indicated above and is addressed to: Box DAC, Assistant Commissioner for Patents, Washington, D.C. 20231.

SIGNED Raquel Graeber
Raquel Graeber

Box DAC
Assistant Commissioner for Patents
Washington, D. C. 20231

Sir:

Applicant is in receipt of the attached Notice of Abandonment mailed April 9, 2002.

Applicant submits that this Notice of Abandonment and the alleged abandonment is improper. The reason for abandonment is given as failure on the part of applicant to respond to the Office letter mailed July 20, 2001.

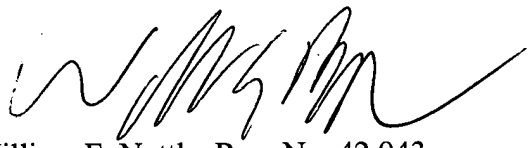
Applicant mailed a Response to the Office letter of April 9, 2001 on August 31, 2001 as evidenced by the enclosed copy of the Response.

The Response was received in the U.S. Patent and Trademark Office on September 4, 2001, as evidenced by the enclosed copy of the return postcard confirming such receipt.

It is therefore respectfully requested that the Notice of Abandonment be withdrawn, that this patent application be returned to pending status and that the Examiner examine this Response.

The Commissioner is authorized to charge any fee associated with the filing of this Petition (or credit any overpayment) to Deposit Account No. 06-1300 (Order No. A-62591-3/AJT).

Respectfully submitted,



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Notice of Abandonment	Application No.	Applicant(s)	
	09/070,699	DICKENSHEETS ET AL.	
	Examiner	Art Unit	
	Hung N Ngo	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

This application is abandoned in view of:

1. ☒ Applicant's failure to timely file a proper reply to the Office letter mailed on *20 July 2001*.
   (a) ☐ A reply was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply (including a total extension of time of _____ month(s)) which expired on _____.
   (b) ☐ A proposed reply was received on _____, but it does not constitute a proper reply under 37 CFR 1.113 (a) to the final rejection.
   (A proper reply under 37 CFR 1.113 to a final rejection consists only of: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114).
   (c) ☐ A reply was received on _____ but it does not constitute a proper reply, or a bona fide attempt at a proper reply, to the non-final rejection. See 37 CFR 1.85(a) and 1.111. (See explanation in box 7 below).
   (d) ☒ No reply has been received.

2. ☐ Applicant's failure to timely pay the required issue fee and publication fee, if applicable, within the statutory period of three months from the mailing date of the Notice of Allowance (PTOL-85).
   (a) ☐ The issue fee and publication fee, if applicable, was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the statutory period for payment of the issue fee (and publication fee) set in the Notice of Allowance (PTOL-85).
   (b) ☐ The submitted fee of $_____ is insufficient. A balance of $_____ is due.
   The issue fee required by 37 CFR 1.18 is $_____. The publication fee, if required by 37 CFR 1.18(d), is $_____.
   (c) ☐ The issue fee and publication fee, if applicable, has not been received.

3. ☐ Applicant's failure to timely file corrected drawings as required by, and within the three-month period set in, the Notice of Allowability (PTO-37).
   (a) ☐ Proposed corrected drawings were received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply.
   (b) ☐ No corrected drawings have been received.

4. ☐ The letter of express abandonment which is signed by the attorney or agent of record, the assignee of the entire interest, or all of the applicants.

5. ☐ The letter of express abandonment which is signed by an attorney or agent (acting in a representative capacity under 37 CFR 1.34(a)) upon the filing of a continuing application.

6. ☐ The decision by the Board of Patent Appeals and Interference rendered on _____ and because the period for seeking court review of the decision has expired and there are no allowed claims.

7. ☐ The reason(s) below:

Hung N Ngo
Primary Examiner
Art Unit: 2874

Petitions to revive under 37 CFR 1.137(a) or (b), or requests to withdraw the holding of abandonment under 37 CFR 1.181, should be promptly filed to minimize any negative effects on patent term.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/070,699	04/30/1998	DAVID L. DICKENSHEETS	A-62591-3/AJ	4718

7590 04/09/2002

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ART UNIT	PAPER NUMBER
2874	

DATE MAILED: 04/09/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

File A-62591-3 ... AJT ...
Due Date ...
Type ... Refs ...

PTO-90C (Rev. 07-01)

In the United States Patent and Trademark Office

File No.: A-62591-3/AJT	U.S. Application No. 09/070,699	Filing Date: 04/30/1998
Date Due: 10/20/2001	Date Mailed: August 31, 2001	Express Mail No.:
Applicant: DICKENSHEETS ET AL. (STANFORD)		
Title: MINIATURE SCANNING CONFOCAL MICROSCOPE		
Enclosures: x Amendment/Response x Certificate of Mailing x Return Postcard		Official Use Only!

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

COPY OF PAPER # 27

In re application of: Dickensheets et al. Serial No. 09/070,699 Filed: April 30, 1998 For: *MINIATURE SCANNING CONFOCAL MICROSCOPE*	Group Art Unit: 2877 Examiner: Hung No **AMENDMENT/RESPONSE** Date: August 31, 2001

CERTIFICATE OF MAILING
I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to Box Non-Fee Amendment, Assistant Commissioner for Patents, Washington, D.C. 20231 on August 31, 2001.
Signed: _____
Kathryn Marley

BOX NON-FEE AMENDMENT
Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

This is in Response to the Office Action mailed July 20, 2001 for the above-identified application.

In the Claims:

Please amend the following claims to read as shown:

44. An optical beam steering apparatus comprising:

a single substrate body defined by an upper surface and formed with at least one cavity including an upper cavity formed on the upper surface of the substrate body and a primary optical path for accommodating the passage of a light beam aligned in a predetermined orientation with the upper cavity; and

a beam steering assembly having a steerable element hingedly secured to said substrate body adjacent the upper cavity for controllably directing the light beam.

45. An optical beam steering apparatus comprising:

a single substrate body defined by an upper surface and formed with at least one cavity including an upper cavity formed on the upper surface of the substrate body and a primary optical path for accommodating the passage of a light beam aligned in a predetermined orientation with the upper cavity; and

a beam steering assembly having a steerable element positioned at a predetermined orientation within the upper cavity for controllably altering the optical path of an impinging beam in at least one direction that is emanating from or propagating towards the primary optical path.

46. An optical beam steering apparatus comprising:

a single substrate body defined by an upper surface and formed with at least one cavity including an upper cavity formed on the upper surface of the substrate body,

a waveguide for accommodating the passage of a light beam aligned in a predetermined orientation with the upper cavity; and

a beam steering assembly having a steerable element positioned substantially adjacent the upper cavity for controllable directing the light beam.

47. An optical beam steering apparatus comprising:

a single substrate body defined by an upper surface and formed with at least one cavity including an upper cavity formed on the upper surface of the substrate body,

a groove for accommodating the passage of the light beam aligned in a predetermined orientation with the upper cavity, and

a beam steering assembly having a steerable element positioned substantially adjacent the upper cavity for controllable directing the light beam.

51. An optical beam steering apparatus comprising:

a single substrate body defined by an upper surface and formed with at least one cavity including an upper cavity formed on the upper surface of the substrate body and a primary optical path for accommodating the passage of a light beam aligned in a predetermined orientation with the upper cavity; and

a beam steering assembly having a steerable element positioned substantially adjacent the upper cavity for controllably directing the light beam.

52. An optical beam steering apparatus comprising:

a single substrate body defined by an upper surface and formed with an upper cavity formed on the upper surface of the substrate body and a primary optical path for accommodating the passage of a light beam aligned in a predetermined orientation with the upper cavity; and

a beam steering assembly having a steerable element positioned substantially adjacent the upper cavity for controllably directing the light beam.

53. An optical beam steering apparatus comprising:

a single substrate body defined by an upper surface and formed with at least one cavity including an upper cavity formed on the upper surface of the substrate body and a primary optical path for accommodating the passage of a light beam aligned in a predetermined orientation with the upper cavity,

a beam steering assembly having a steerable element hingedly secured to said substrate body adjacent the upper cavity for controllably directing the light beam from the steerable element generally toward a lower surface of the single substrate body, and

a cover plate for covering at least said one cavity and an adjacent surface of the substrate body.

54. An optical beam steering apparatus comprising:

a single substrate body defined by an upper surface and formed with at least one cavity including an upper cavity formed on the upper surface of the substrate body and a primary optical path for accommodating the passage of a light beam aligned in a predetermined orientation with the upper cavity,

a beam steering assembly having a steerable element positioned substantially adjacent the upper cavity for controllably directing the light beam from the steerable element generally toward a lower surface of the single substrate body, and

a cover plate is formed from fused silica for covering at least said one cavity and an adjacent surface of the substrate body.

55. An optical beam steering apparatus comprising:

a single substrate body defined by an upper surface and formed with at least one cavity including an upper cavity formed on the upper surface of the substrate body and a primary optical path for accommodating the passage of a light beam aligned in a predetermined orientation with the upper cavity; and

a hinge for flexibly connecting the beam steering assembly with an upper edge of the upper cavity that is not coincident with the primary optical path;

wherein the beam steering assembly includes at least one reflective surface such that the beam steering assembly is disposed within the upper cavity so that an impinging beam of light emanating from the primary optical path is controllably deflected in the same general direction the upper cavity is facing and wherein a beam of light entering from the same general direction the upper cavity is facing is controllably deflected towards said primary optical path.

70. An optical head assembly comprising:

a single substrate body defined by an upper surface and formed with at least one cavity including an upper cavity formed on the upper surface of the substrate body and a primary optical path for accommodating the passage of a light beam aligned in a predetermined orientation with the upper cavity; and

a beam steering assembly rigidly affixed in a predetermined orientation within at least a portion of the upper cavity having a steerable element hingedly secured to said substrate body substantially adjacent the upper cavity for controllably directing the light beam through at least a portion of the upper cavity.

71. An optical head assembly comprising:

a single substrate body defined by an upper surface and formed with at least one cavity including an upper cavity formed on the upper surface of the substrate body and a primary optical path for accommodating the passage of a light beam aligned in a predetermined orientation with the upper cavity; and

beam steering assembly rigidly affixed in a predetermined orientation within the upper cavity by chemical bonding with a chemical bonding agent, and

having a steerable element positioned substantially adjacent the upper cavity for controllably directing the light beam through at least a portion of the upper cavity.

72. An optical head assembly comprising:

a single substrate body defined by an upper surface and formed with at least one cavity including an upper cavity formed on the upper surface of the substrate body and a primary optical path for accommodating the passage of a light beam aligned in a predetermined orientation with the upper cavity; and

beam steering assembly rigidly affixed in a predetermined orientation within the upper cavity by thermal bonding with a thermal bonding agent, and

having a steerable element positioned substantially adjacent the upper cavity for controllably directing the light beam through at least a portion of the upper cavity.

REMARKS

Claims 55-69 are allowed.

Claims 45-52, 54, 55, 71 and 72 were objected to as being dependent from a rejected claim, but would be allowable if rewritten in independent form. This has been done.

Claims 44, 53 and 70 were rejected under 35 U.S.C. 102(b). These claims have been amended to call for the steerable element being hingedly secured to the substrate body. The cited references do not show or suggest a steerable element which is hinged to the substrate body. These claims, as amended, are believed to also be allowable.

Favorable action is respectfully requested.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

In view of the foregoing, favorable action is respectfully requested.

The Commissioner is hereby authorized to charge any underpayment of fees associated with this communication or credit any overpayment to our Deposit Account No. 06-1300 (Order No. A-62591-3/AJT).

Respectfully submitted,

Aldo J. Test, Reg. No. 18,048

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

All pending claims are listed below, whether amended or not, for the Examiner's convenience.

44. (amended) An optical beam steering apparatus comprising:

a single substrate body defined by an upper surface and formed with at least one cavity including an upper cavity formed on the upper surface of the substrate body and a primary optical path for accommodating the passage of a light beam aligned in a predetermined orientation with the upper cavity; and

a beam steering assembly having a steerable element [positioned substantially] hingedly secured to said substrate body adjacent the upper cavity for controllably directing the light beam.

45. (amended) An optical beam steering apparatus comprising:

a single substrate body defined by an upper surface and formed with at least one cavity including an upper cavity formed on the upper surface of the substrate body and a primary optical path for accommodating the passage of a light beam aligned in a predetermined orientation with the upper cavity; and

[The optical apparatus according to claim 44 wherein the] a beam steering assembly [is placed] having a steerable element positioned at a predetermined orientation within the upper cavity for controllably altering the optical path of an impinging beam in at least one direction that is emanating from or propagating towards the primary optical path.

46. (amended) An optical beam steering apparatus comprising:

a single substrate body defined by an upper surface and formed with at least one cavity including an upper cavity formed on the upper surface of the substrate body,

[The optical apparatus according to claim 44 wherein the primary optical path is] a waveguide for accommodating the passage of a light beam aligned in a predetermined orientation with the upper cavity; and

a beam steering assembly having a steerable element positioned substantially adjacent the upper cavity for controllable directing the light beam.

47. (amended) An optical beam steering apparatus comprising:

a single substrate body defined by an upper surface and formed with at least one cavity including an upper cavity formed on the upper surface of the substrate body,

[The optical apparatus according to claim 44 wherein the primary optical path is] a groove for accommodating the passage of the light beam aligned in a predetermined orientation with the upper cavity, and

a beam steering assembly having a steerable element positioned substantially adjacent the upper cavity for controllable directing the light beam.

48. (allowed) The optical apparatus according to claim 47 wherein the groove is a V-groove.

49. (allowed) The optical apparatus according to claim 48 further comprising a primary optical element for accommodating the light beam wherein the primary optical element is provided within the V-groove.

50. (allowed) The optical apparatus according to claim 49 wherein the primary optical element is selected from the group consisting of optical waveguides, light detectors, beam splitters, and lasers.

51. (amended) [The optical apparatus according to claim 44 wherein the substrate body is formed of a crystal having a differential etch rate between different crystallographic planes] An optical beam steering apparatus comprising:

a single substrate body defined by an upper surface and formed with at least one cavity including an upper cavity formed on the upper surface of the substrate body and a primary optical path for accommodating the passage of a light beam aligned in a predetermined orientation with the upper cavity; and

a beam steering assembly having a steerable element positioned substantially adjacent the upper cavity for controllably directing the light beam.

52. (amended) [The optical apparatus according to claim 44 wherein at least one cavity is anisotropically etched into the substrate body] An optical beam steering apparatus comprising:

a single substrate body defined by an upper surface and formed with an upper cavity formed on the upper surface of the substrate body and a primary optical path for accommodating the passage of a light beam aligned in a predetermined orientation with the upper cavity; and

a beam steering assembly having a steerable element positioned substantially adjacent the upper cavity for controllably directing the light beam.

53. (amended) An optical beam steering apparatus comprising:

a single substrate body defined by an upper surface and formed with at least one cavity including an upper cavity formed on the upper surface of the substrate body and a primary optical path for accommodating the passage of a light beam aligned in a predetermined orientation with the upper cavity,

a beam steering assembly having a steerable element [positioned substantially] hingedly secured to said substrate body adjacent the upper cavity for controllably directing the light beam from the steerable element generally toward a lower surface of the single substrate body, and

a cover plate for covering at least said one cavity and an adjacent surface of the substrate body.

54. (amended) [The optical apparatus according to claim 53 wherein the cover plate is formed from fused silica] An optical beam steering apparatus comprising:

a single substrate body defined by an upper surface and formed with at least one cavity including an upper cavity formed on the upper surface of the substrate body and a primary optical path for accommodating the passage of a light beam aligned in a predetermined orientation with the upper cavity,

a beam steering assembly having a steerable element positioned substantially adjacent the upper cavity for controllably directing the light beam from the steerable element generally toward a lower surface of the single substrate body, and

a cover plate is formed from fused silica for covering at least said one cavity and an adjacent surface of the substrate body.

55. (amended) [The optical apparatus according to claim 44 further] An optical beam steering apparatus comprising:

a single substrate body defined by an upper surface and formed with at least one cavity including an upper cavity formed on the upper surface of the substrate body and a primary optical path for accommodating the passage of a light beam aligned in a predetermined orientation with the upper cavity; and

a hinge for flexibly connecting the beam steering assembly with an upper edge of the upper cavity that is not coincident with the primary optical path;

wherein the beam steering assembly includes at least one reflective surface such that the beam steering assembly is disposed within the upper cavity so that an impinging beam of light emanating from the primary optical path is controllably deflected in the same general direction the upper cavity is facing and wherein a beam of light entering from the same general direction the upper cavity is facing is controllably deflected towards said primary optical path.

56. (allowed) A hybrid optical steering system comprising:

a first substrate body defined by an upper surface and a lower surface and formed with at least one cavity including an upper cavity formed on the upper surface of the substrate body and a primary optical path for accommodating the passage of a light beam aligned in a predetermined orientation with the upper cavity;

a second substrate body defined by an upper surface and a lower surface, said second substrate body having a lower cavity formed on its upper surface, said lower cavity having a predetermined alignment with respect to the upper cavity;

a suspended bridge spanning the primary optical path at a juncture between the primary optical path and the upper cavity;

a beam steering assembly having a steerable element positioned substantially adjacent the upper cavity for controllably directing the light beam through at least a portion of the first substrate body; and

a hinge for flexibly anchoring the beam steering assembly to the suspended bridge wherein the beam steering assembly has at least one reflective surface and is rotated towards the upper cavity so that an impinging beam of light emanating from the primary optical path is controllable deflected in a direction generally from the upper cavity to the lower cavity and an impinging beam of light entering from the lower cavity is controllably deflected in a direction generally from the lower cavity to the upper cavity towards the primary optical path.

57. (allowed) The optical apparatus according to claim 56 further comprising:

a secondary optical element for accommodating a beam of light disposed within the lower cavity of the second substrate body; and

means for aligning the secondary optical element within the lower cavity so that

(i) the secondary optical element is substantially centered in the lower cavity and

(ii) the optical axis of the secondary optical element is aligned at a predetermined angle with respect to the lower surface of the first substrate body.

58. (allowed) The optical apparatus according to claim 57 wherein the secondary optical element is selected from the group consisting of optical fibers, refractive optical elements, reflective optical elements, phase optical elements, light detectors, beam splitters, lasers, light emitting diodes, incandescent light sources, fluorescent light sources, natural light sources, and plasma light sources.

59. (allowed) A micro-machined steerable optical device comprising:

a single substrate body defined by an upper surface and formed with at least one cavity including an upper cavity formed on the upper surface of the substrate body, and a primary optical path for accommodating the passage of a light beam aligned in a predetermined orientation with the upper cavity;

a beam steering assembly having a steerable element positioned substantially adjacent to the upper cavity for controllable directing the light beam through at least a portion of the substrate body; and

a frame and micromirror nested in a set of hinges that provides an axis of rotation of the micromirror with respect to the frame and wherein the frame holds the set of the hinges and is connected to the upper surface of the substrate body so that the beam steering assembly may deflect a light beam in a direction towards a surface of the substrate.

60. (allowed) The steerable optical device according to claim 59 further comprising:

a plurality of independently addressable electrodes disposed about the gimbaled micromirror for positioning the micromirror in direct electrical communication with a plurality of electrical lines; and

electronic control means in communication with the electrical lines for electrically driving the gimbaled micromirror to a predetermined angular orientation with respect to the frame.

61. (allowed) The steerable optical device according to claim 59 wherein the gimbaled micromirror is defined by an electrically conductive and optically reflective surface and further includes a conductive film.

62. (allowed) The steerable optical device according to claim 61 further including an insulating film covering at least a portion of the gimbaled micromirror.

63. (allowed) A micro-machined steerable optical device comprising:

a single substrate body defined by an upper surface and formed with at least one cavity including an upper cavity formed on the upper surface of the substrate body and a primary optical path for accommodating the passage of a light beam aligned in predetermined orientation with the upper cavity;

a beam steering assembly having a steerable element positioned substantially adjacent to the upper cavity for controllably directing the light beam through at least a portion of the substrate body; and

a frame and a micromirror nested in a set of hinges that provides an axis of rotation of the micromirror with respect to the frame and wherein the frame holds the set of hinges and is connected to the upper surface of the substrate body so that the beam steering assembly may deflect a light beam in a direction towards a surface of the substrate.

64. (allowed) The steerable optical device according to claim 63 further comprising:

a plurality of independently addressable electrodes disposed about the micromirror for positioning the micromirror in direct electrical communication with a plurality of electrical lines; and

electronic control means in communication with the electrical lines for electrically driving the micromirror to a predetermined angular orientation with respect to the frame.

65. (allowed) The steerable optical device according to claim 63 wherein the micromirror is defined by an external surface and is formed with a conductive film adjacent to its external surface and across the at least one set of hinges so that the micromirror is in electrical communication with the electronic control means.

66. (allowed) A micro-machined steerable optical device comprising:

a single substrate body defined by an upper surface and formed with at least one cavity including an upper cavity formed on the upper surface of the substrate body, and a primary optical path for accommodating the passage of a light beam aligned in a predetermined orientation with the upper cavity;

a beam steering assembly having a steerable element positioned substantially adjacent to the upper cavity for controllably directing the light beam through at least a portion of the substrate body; and

a frame and a hybrid micromirror nested in at least one set of hinges including a relatively outermost set of hinges that provides additional axes of rotation of the hybrid micromirror with respect to the frame and wherein the frame holds an outermost set of the hinges and is connected to the upper surface of the substrate body so that the beam steering assembly may deflect a light beam in a direction towards a surface of the substrate.

67. (allowed) The steerable optical device according to claim 66 further comprising:

a plurality of independently addressable electrodes disposed about the hybrid micromirror for positioning the micromirror in direct electrical communication with a plurality of electrical lines; and

electronic control means in communication with the electrical lines for electrically driving the hybrid micromirror to a predetermined angular orientation with respect to the frame.

68. (allowed) The steerable optical device according to claim 66 wherein the hybrid micromirror is defined by an electrically conductive and optically reflective surface and further includes a conductive film.

69. (allowed) The steerable optical device according to claim 68 further including an insulating film covering at least a portion of the hybrid micromirror.

70. (amended) An optical head assembly comprising:

a single substrate body defined by an upper surface and formed with at least one cavity including an upper cavity formed on the upper surface of the substrate body and a primary optical path for accommodating the passage of a light beam aligned in a predetermined orientation with the upper cavity; and

a beam steering assembly rigidly affixed in a predetermined orientation within at least a portion of the upper cavity having a steerable element [positioned] hingedly secured to said substrate body substantially adjacent the upper cavity for controllably directing the light beam through at least a portion of the upper cavity.

71. (amended) [The optical apparatus according to claim 70 wherein the] An optical head assembly comprising:

a single substrate body defined by an upper surface and formed with at least one cavity including an upper cavity formed on the upper surface of the substrate body and a primary optical path for accommodating the passage of a light beam aligned in a predetermined orientation with the upper cavity; and

beam steering assembly [is] rigidly affixed in a predetermined orientation within the upper cavity by chemical bonding with a chemical bonding agent, and

having a steerable element positioned substantially adjacent the upper cavity for controllably directing the light beam through at least a portion of the upper cavity.

72. (amended) [The optical apparatus according to claim 70 wherein the] An optical head assembly comprising:

a single substrate body defined by an upper surface and formed with at least one cavity including an upper cavity formed on the upper surface of the substrate body and a primary optical path for accommodating the passage of a light beam aligned in a predetermined orientation with the upper cavity; and

beam steering assembly [is] rigidly affixed in a predetermined orientation within the upper cavity by thermal bonding with a thermal bonding agent, and

having a steerable element positioned substantially adjacent the upper cavity for controllably directing the light beam through at least a portion of the upper cavity.

In the United States Patent and Trademark Office

File No.:	U.S.Application No.	Filing Date:
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Date Due:	Date Mailed:	Express Mail No.:
10/20/2001	August 31, 2001	
Applicant: DICKENSHEETS ET AL.		(STANFORD)
Title: MINIATURE SCANNING CONFOCAL MICROSCOPE		
Enclosures: _x_ Amendment/Response _x_ Certificate of Mailing _x_ Return Postcard		Official Use Only!